

Art Unit 2652  
Serial No. 09/500,380

PATENT  
Attorney Docket No.: RR-1645

## CLAIM AMENDMENTS

This listing of claims will replace all prior versions, and listings, of claims in the application:

### Listing of Claims:

1. (Previously Presented) A transducer comprising:  
a plurality of solid layers, including a magnetically soft loop substantially encircling an electrically conductive coil section and terminating in leading and trailing magnetically soft layers separated by an amagnetic gap layer, said trailing magnetically soft layer being oriented substantially perpendicular to said amagnetic layer, wherein said trailing magnetically soft layer has a width measured in a direction substantially parallel to said amagnetic layer, said width being less than about two hundred nanometers and greater than about twenty angstroms.

2-11. (Canceled)

12. (Previously Presented) A transducer for an information storage system, the transducer comprising:  
a plurality of solid layers, including a magnetoresistive sensor layer and a magnetically soft loop substantially encircling an electrically conductive coil section and terminating adjacent a media-facing surface in leading and trailing magnetically soft layers separated by an amagnetic gap layer, said trailing magnetically soft layer being oriented substantially perpendicular to said magnetoresistive sensor layer and having a width measured in a direction substantially parallel to said magnetoresistive sensor layer, said width being less than about two hundred nanometers and greater

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than about twenty angstroms.

13-81. (Canceled)

82. (Previously Presented) The transducer of claim 1, wherein a distance between said magnetically soft layers is not substantially greater than said width.

83. (Previously Presented) The transducer of claim 1, wherein said trailing magnetically soft layer has a length measured in a direction substantially perpendicular to said amagnetic layer, with said length being at least six times greater than said width.

84. (Previously Presented) The transducer of claim 1, wherein said trailing magnetically soft layer contains a refractory metal.

85. (Previously Presented) The transducer of claim 1, wherein said trailing magnetically soft layer contains material having a  $B_s$  higher than that of Permalloy.

86. (Previously Presented) The transducer of claim 1, wherein said leading magnetically soft layer is substantially perpendicular to said trailing magnetically soft layer.

87. (Previously Presented) The transducer of claim 1, wherein said trailing magnetically soft layer contains vacuum-deposited material.

88. (Previously Presented) The transducer of claim 1, further comprising a magnetoresistive sensor layer disposed adjacent said leading magnetically soft layer and oriented substantially perpendicular to said trailing magnetically soft layer.

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89. (Previously Presented) The transducer of claim 1, wherein said magnetically soft loop includes a magnetically soft trailing yoke layer that adjoins said trailing magnetically soft layer.

90. (Previously Presented) The transducer of claim 89, wherein said trailing yoke layer extends further in said direction substantially parallel to said amagnetic layer than in a direction substantially perpendicular to said amagnetic layer and aligned with said leading and trailing magnetically soft layers.

91. (Previously Presented) The transducer of claim 12, wherein said trailing magnetically soft layer is substantially perpendicular to said amagnetic layer.

92. (Previously Presented) The transducer of claim 12, wherein said trailing magnetically soft layer is substantially perpendicular to said leading magnetically soft layer.

93. (Previously Presented) The transducer of claim 12, wherein said trailing magnetically soft layer has a length measured in a direction substantially perpendicular to said magnetoresistive sensor layer, with said length being at least six times greater than said width.

94. (Currently Amended) The transducer of claim 12, wherein ~~said width of said trailing magnetically soft layer is less than about two hundred nanometers is laminated~~.

95. (Previously Presented) The transducer of claim 12, wherein said width of said trailing magnetically soft layer is not substantially greater than a thickness of said amagnetic layer.

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96. (Previously Presented) The transducer of claim 12, wherein said trailing magnetically soft layer contains material having a  $B_s$  higher than that of Permalloy.

97. (Previously Presented) The transducer of claim 12, wherein said trailing magnetically soft layer contains a refractory metal.

98. (Previously Presented) The transducer of claim 12, wherein said trailing magnetically soft layer is sputter-deposited.

99. (Previously Presented) The transducer of claim 12, wherein said leading magnetically soft layer is sputter-deposited.

100. (Previously Presented) The transducer of claim 12, wherein said magnetically soft loop includes a magnetically soft trailing yoke layer that adjoins said trailing magnetically soft layer.

101. (Previously Presented) The transducer of claim 100, wherein said trailing yoke layer extends further in said direction substantially parallel to said magnetoresistive sensor layer than in a direction substantially perpendicular to said magnetoresistive sensor layer and aligned with said leading and trailing magnetically soft layers.

102-120. (Canceled)

121. (Previously Presented) A transducer comprising:  
a magnetoresistive sensor layer,  
a magnetically soft loop disposed adjacent to said magnetoresistive sensor layer, traversed by an electrically conductive coil section and including magnetically soft leading and trailing pole-tips disposed adjacent to a media-facing surface, said trailing pole-tip aligned with said magnetoresistive sensor layer along a